25. *Stromatoporoids from the Torinosu Limestone of Japan.*

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In 1903, Yabe[1] published a brief note "On a Mesozoic *Stromatopora*," thereby describing a new species, *Stromatopora japonica* Yabe, from the Torinosu limestone of Fukazawa near Itsukaichi, province of Musashi. This is a true, if not the typical, *Stromatopora* as now confirmed by us; it is decidedly not a *Myriopora* or its ally, as early suggested by W. Volz[2] and recently once more claimed by O. Kühn.[3]

Stromatoporoids, as well as Milleporoids and Spongiomorphoids, are common in the Torinosu limestone which is Upper Jurassic in age.[4] In our collection of fossils from the limestone, there are numerous specimens of Stromatoporoids, some of columnar and the other of lamellar growth, of which we can now distinguish ten species and two varieties belonging to the genus *Stromatopora* in the sense modified to be stated below.

H. A. Nicholson[5] distinguished *Parallelopora* from *Stromatopora* in his standard work on Palaeozoic Stromatoporoids, because the vertical elements or pillars of coenosteum are more independent of the horizontal elements and more persistent in *Parallelopora* than in *Stromatopora*. Further, the microstructure of the skeletal elements or

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1) H. Yabe: On a Mesozoic *Stromatopora*. Jour. Geol. Soc. Tôkyô, X, **123** (1903).

2) W. Volz: Oberer Jura in West-Sumatra. Centralb. f. M. G .P., (1913), p. 753.

3) O. Kühn: Hydrozoa in Fossilium Catalogus, Animalia, (1928), p. 87.

4) H. Yabe: Cretaceous Stratigraphy of the Japanese Islands. Sci. Rep. Tôhoku Imp. Univ., Ser. II (Geol.), XI, **1** (1927), p. 89.

5) In Palaeozoic forms of *Stromatopora*, the skeletal elements or trabeculae of coenosteum, in good preservation, always exhibit numerous minute round or oval lucid spaces in a dark coloured substance; the tissue is therefore to be stated as uniformely dotted for the sake of brevity. In *Paralleolopora ostiolata*, the lucid spaces are larger and vertically elongated, appearing rod-like. There is no instance known of Palaeozoic *Stromatopora* and *Parallelopora*, or of *Palaeozoic* Stromatoporoids in general, in which the skeletal elements have the microstructure resembling that of trabeculae of Hexacoralla. The trabeculae of Hexacoralla are composed of diverging fascicles of fibres directed upwards and outwards from each centre of calcification to their lateral surface.

trabeculae of coenosteum is peculiar to each of the two genera, the trabeculae penetrated by "vertical rods" in the type species of *Parallelopora* and finely dotted in that of *Stromatopora*. Regardless of the latter difference, several species of *Stromatopora* were transfered by later authors to *Parallelopora*, simply on account of their possession of well-developed vertical pillars, and this clearly points to the fact that the two genera are closely related to each other, linked together by many transitional forms.

M. Heinrich[1] once pointed out that *Stromatopora japonica* is more like *Parallelopora* than *Stromatopora*, and it is so far certain that this and all other new species now distinguished from the Japanese Jurassic more or less approach the Palaeozoic forms of *Parallelopora* in the arrangement of vertical and horizontal elements of coenosteum; but at the same time it must be pointed out that their trabeculae possess a microstructure different from those of *Parallelopora* and also of Palaeozoic *Stromatopora*.

Our Jurassic forms are divisible into two different groups, *Epistromatopora* and *Parastromatopora*, according to the microstructure of the trabeculae of coenosteum. In both types, the trabeculae are fibrous. In *Epistromatopora*, they are minutely dotted in the median part, the dots being round in outline, uniform in size, and lucid, while the ground-mass is fibrous and dark coloured. In *Parastromatopora*, on the other hand, the lucid dots are larger, elongated upwards and outwards along the divergent fibres of the trabeculae. The microstructure being constant to the trabeculae of all the species belonging to each type, it is regarded by us as essential to the organisms and hence important for the classification; previously the microstructure of trabeculae did not receive our attention, it deserves, in Stromatoporoids.

In accordance with the different microstructure of trabeculae, *Stromatopora* (as represented by Pelaeozoic forms), *Parallelopora*, *Epistromatopora* and *Parastromatopora* must be regarded as four different types, though they do not materially differ in the arrangement of the vertical and horizontal elements of coenosteum. Therefore, the genus *Stromatopora* is, in our opinion, better to be extended as to include *Parallelopora* as well as *Epistromatopora* and *Parastromatopora* from the Japanese Jurassic, in the following way:

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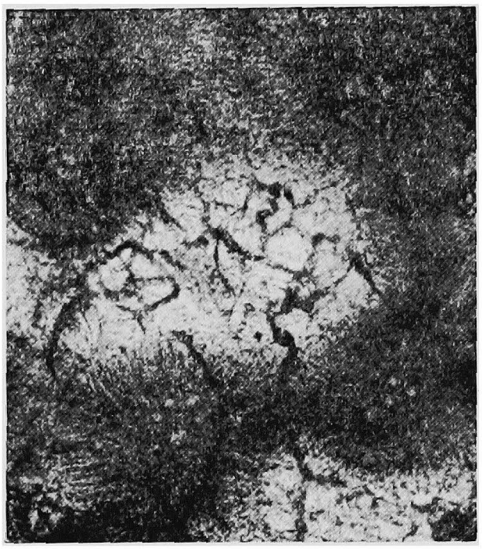
1) M. Heinrich: Studien in den Riffkalken des rheinischen oberen Mitteldevons. Dissertation, (1914), p. 56.

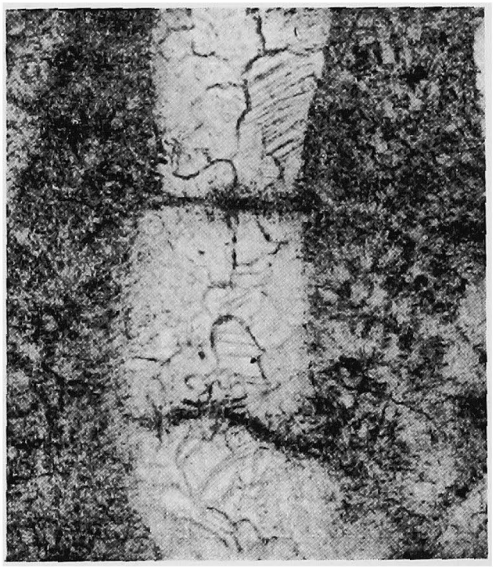
Genus *Stromatopora* Goldfuss emend.

Genotype: *Stromatopora concentrica* Goldf. Coenosteum reticulate, with vertical and horizontal elements more or less distinct; interspaces traversed by numerous horizontal tabulae; astrorhizae usually present.

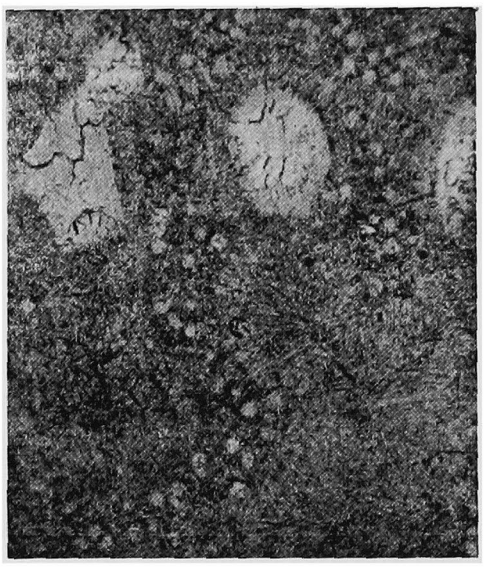
1.



2.



3.



4.

Microstructure of trabeculae ×80.

1. *Stromatopora* (*Epistromatopora*) *torinosuensis*, vertical section.
2. The same, horizontal section.
3. *Stromatopora* (*Parastromatopora*) *japonica* Yabe, vertical section.
4. The same, horizontal section.

Stromatopora s.s. Skeletal elements vermiculate in vertical section almost as strong as in horizontal section; microstructure of trabeculae dotted, dots being approximately round in the most cases.

Sugenus *Parallelopora* Bargatzky emend. Subgenotype: *Stromatopora* (*Parallelopora*) *ostiolata* Bargatzky. Skeletal elements vermiculate in horizontal section; trabeculae (under high magnification) penetrated by "vertical rods."

Subgenus *Epistromatopora* nov. Subgenotype: *Stromatopora* (*Epistromatopora*) *torinosuensis* nov. sp. More like *Parallelopora* than *Stromatopora* s.s. in the arrangement of vertical and horizontal elements; microstructure of trabeculae fibrous, with minute round dots in the median part.

Subgenus *Parastromatopora* nov. Subgenotype: *Stromatopora* (*Parastromatopora*) *japonica* Yabe. Like *Epistromatopora* or *Stromatopora* s.s. in the arrangement of vertical and horizontal elements; microstructure of trabeculae fibrous, with elongate or oblong "rods" disposed obliquely to the lateral surface of the trabeculae.

Epistromatopora includes the genotype and one species more, while *Parastromatopora* has, besides the genotype, seven species and two varieties; all of these species are from the Torinosu limestone of Japan, and will be fully illustrated in the Science Reports of the Tôhoku Imperial University, Series II (Geology), Vol. XIV, No. 2, in preparation.